

Roll No. ....

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**Paper ID [A0218]**

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**BCA (403) (S05) (O) (Sem. - 4<sup>th</sup>)****COMPUTER SYSTEM ARCHITECTURE****Time : 03 Hours****Maximum Marks : 75****Instruction to Candidates:**

- 1) Section - A is **Compulsory**.
- 2) Attempt any **Nine** questions from Section - B.

**Section - A****Q1)****(15 × 2 = 30)**

- a) What are stack pointers?
- b) Define OP codes.
- c) What is zero address instruction?
- d) What are I/O ports?
- e) What is the function of associative memory? What is another name of it?
- f) Write a note on computer registers.
- g) Briefly explain the stack limits.
- h) What are the three major phases through which the control unit go through an instruction cycle?
- i) Define cache memory.
- j) What is Asynchronous data transfer?
- k) Differentiate between isolated I/O and memory mapped I/O?
- l) Define memory hierarchy.
- m) What is the function of accumulator in 8 bit microprocessor.
- n) Differentiate between Interpreter and Compiler.
- o) What do you understand by Interleaved DMA?

**Section - B****(9 × 5 = 45)**

- Q2)** Write a step wise procedure to write information in Computer's memory.
- Q3)** Discuss the various phases of instruction cycle.
- Q4)** Explain the control unit architecture.
- Q5)** List the control functions and micro operations needed for the execution of memory reference instructions.
- Q6)** Draw a block diagram for data transfer from CPU to an interface and then to an I/O device. Determine the procedure for setting and clearing the flag bit.
- Q7)** What is the difference between a direct and indirect address instruction? How many references to memory are needed for each type of instruction to bring an operand into a processor register?
- Q8)** (a) Differentiate between RISC and CISC.  
(b) What is the difference between hardwired control and micro programmed controls?
- Q9)** Discuss the various modes of data transfer.
- Q10)** Draw and explain address and data bus structure of 8 bit microprocessor.
- Q11)** Determine the methods to handle branches in a pipeline instruction execution unit.
- Q12)** Write an algorithm for multiplication of two unsigned numbers using shift and add method.
- Q13)** Write short notes on the following:  
(a) Array Processor  
(b) Memory Management Techniques.

